

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1, 2, 49 and 52 are being amended without the addition of impermissible new matter. Claims 4, 5 and 72 are cancelled. Upon entry of this paper, therefore, claims 1-3, 6-9, 49-54 and 62-65 are pending in this application. Claims 62-65 are withdrawn from consideration.

Claim Objections

Claim 1 is objected to for informalities. Claim 1 has been amended, rendering the objection moot. Favorable reconsideration and withdrawal of the objection to claim 1 are respectfully requested.

Claim Rejections - 35 U.S.C. § 102

Claims 1-2, 4-6, 49-52, 54, and 72 are rejected under 35 U.S.C. 102(b) as being anticipated by newly cited U.S. Patent No. 3,176,809 to Monroe (hereafter “Monroe”). For at least the following reasons, this rejection is respectfully traversed.

Monroe fails to disclose a viscous fluid clutch, a magnetorheological fluid clutch or a fluid clutch comprising, among other things, a rotor surface including a grooved portion having “undulating inner and outer radial surfaces that form a W-shaped profile,” as recited in independent claims 1, 2, 49 and 52.

Monroe discloses an electromagnetic apparatus 10 including a rotor 20 having an inner annular drum portion 45 which is carried by a disk portion 46 and lies between an outer annular drum portion 44 and pole portions 37, 38. See col. 3, lines 1-7. On page 4 of the Office Action, the Office includes an annotated copy of a portion of Figure 1 of Monroe, identifying portions of the rotor 20 that allegedly correspond to Applicants’ first portion, grooved portion and second portion. Although on page 3 of the Office Action, the Office asserts that “the grooved portion shown below and in Fig. 1 forms at least two W-shaped profiles,” Applicants respectfully submit that Monroe does not disclose a W-shaped profile.

As seen in Figure 1 of Monroe, rotor 20 at best has an undulating outer radial surface. A “W” is characterized by one peak in between two valleys. There are too many peaks and valleys for the undulating outer radial surface of rotor 20 to be considered W-shaped. Therefore, the outer radial surface of rotor 20 does not form a W-shaped profile.

Also, Monroe fails to disclose a rotor 20 with an undulating inner radial surface that forms a W-shaped profile. As seen in Figure 1, at best only one radial surface of rotor 20 includes grooves. Consequently, Monroe fails to disclose a viscous fluid clutch, a magnetorheological fluid clutch or a fluid clutch comprising, among other things, a rotor surface including a grooved portion having “undulating inner and outer radial surfaces that form a W-shaped profile,” as recited in independent claims 1, 2, 49 and 52. Therefore, claims 1, 2, 49 and 52 are patentable over Monroe.

Claims 3 and 6 depend from claim 2 and are allowable for at least the reasons that claim 2 is allowable, in addition to their respective recitations. Claims 50 and 51 depend from claim 49 and are allowable for at least the reasons that claim 49 is allowable, in addition to their respective recitations. Claim 54 depends from claim 52 and is allowable for at least the reasons that claim 52 is allowable, in addition to its respective recitations. Claims 4, 5 and 72 were cancelled, rendering their rejection moot. Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Claim Rejections - 35 U.S.C. § 103

A. Claims 3, 7, 8 and 53

Claims 3, 7, 8 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe. For at least the reasons discussed above, Monroe fails to disclose a magnetorheological fluid clutch comprising, among other things, a rotor surface including a grooved portion having “undulating inner and outer radial surfaces that form a W-shaped profile,” as recited in independent claims 2 and 52.

Claims 3, 7 and 8 depend from claim 2 and are allowable for at least the reasons that claim 2 are allowable, in addition to their respective recitations. Claim 53 depends from claim 52 and is allowable for at least the reasons that claim 52 is allowable, in addition to its

respective recitations. Favorable reconsideration and withdrawal of the rejection are respectfully requested.

B. Claims 1-9, 49-54 and 72

Claims 1-9, 49-54 and 72 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,102,177 to Moser et al. (hereafter “Moser”) in view of Monroe. For at least the following reasons, this rejection is respectfully traversed.

Applicants respectfully submit that it would not have been obvious to combine Moser and Monroe. On page 8 of the Office Action, the Office asserts that “it would have been obvious to one having ordinary skill in the art at the time the invention was made to reduce the thickness of a portion of the rotor, as is known from Moser ‘177 and form it in the shape of a “W”, as is known from Monroe ‘809, in order to solve the same problem addressed in Moser ‘177.” There is no teaching, suggestion, or motivation provided by either Moser or Monroe to combine the references in this manner. Moser is directed to a viscous fan clutch that can be controlled by an engine control management system having the ability to variably control the engagement of the clutch and rotation of the fan. See col. 1, lines 59-63. In contrast, Monroe is directed to an electromagnetic apparatus with brake means for retarding rotation of the rotor means when the field means is de-energized. See col. 1, lines 9-16. Moser and Monroe deal with different issues. Also, neither Moser nor Monroe is concerned with preventing a magnetic field from shunting along the rotor, which is the purpose for including the grooved portion having a W-shaped profile in the embodiments described in Applicants’ specification. See paragraph [0054] of Applicants’ published application. The Office does not rely on motivations found in the prior art but seems to be relying on the teaching of the application to improperly form the combination. The Office has used Applicants’ teachings in the specification to provide the motivation necessary to form the combination, which is impermissible hindsight.

Moreover, assuming, arguendo, that Moser and Monroe would have been combined, the combination fails to disclose, teach or suggest a viscous fluid clutch, a magnetorheological fluid clutch or a fluid clutch comprising, among other things, a rotor

surface including a grooved portion having “undulating inner and outer radial surfaces that form a W-shaped profile,” as recited in independent claims 1, 2, 49 and 52.

On page 8 of the Office Action, the Office acknowledges that Moser’s “portion of reduced thickness is very thin, but is not formed in the shape of a “W.” Moser discloses a viscous clutch assembly that includes a rotor assembly 14 that in turn includes a hub 36 and a rotor 38. *See* col. 2, lines 49-50 and Figure 1. Moser discloses that coil rings 84 of the clutch assembly define a gap 94 which is filled with epoxy and rotor 38 includes a second gap 96. *See* Col. 3, lines 38-42 and Figure 1. Moser does not disclose or suggest a rotor that includes a first portion, second portion, and grooved portion formed from a single piece, wherein the grooved portion has undulating inner and outer radial surfaces that form a W-shaped profile. Consequently, independent claims 1, 2, 49 and 52 are patentable over Moser and Monroe.

Claims 3 and 6-9 depend from claim 2 and are allowable for at least the reasons that claim 2 is allowable, in addition to their respective recitations. Claims 50 and 51 depend from claim 49 and are allowable for at least the reasons that claim 49 is allowable, in addition to their respective recitations. Claims 53 and 54 depend from claim 52 and are allowable for at least the reasons that claim 52 is allowable, in addition to their respective recitations. Claims 4, 5 and 72 were cancelled, rendering their rejection moot. Favorable reconsideration and withdrawal of the rejection are respectfully requested.

CONCLUSION

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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